DEQ - DRAFT GENERAL COMMENTS ON THE OCTOBER 2014 FEASIBILITY STUDY

#1 a, Scope of Proposed Work. All of the "action" remedies show laying back of the riverbank to either a 3H:1V or 2H:1V slope, with work extending to ordinary high water (OHW). DEQ notes that the upland is defined in Section 2.1 as extending from the mean high water (MHW) line. MWH is approximately 7 feet lower (vertical elevation) than OHW. Please discuss/resolve this discrepancy.

Additional discussion is needed between DEQ and the Port as to whether riverbank remedial measures will be completed as part of: 1) upland remedy implementation, 2) source control efforts, or 3) in conjunction with implementation of the in-water remedy under EPA. If considerable time is expected to elapse before bankline remedy, interim stabilization efforts are expected to be necessary in high-risk portions of the bankline (above MHW) for source control purposes.

DEQ would prefer that removal actions focus on riverbank hot spots, considering both terrestrial and in-water exposure and the portion of the upland site closest to the river.

#1 b: Scope of Risk Evaluated in the Feasibility Study. The FS evaluates risk and hot spot summaries relative to upland exposure to human health and terrestrial receptors, but does not evaluate areas of concern relative to source control criteria. Areas of concern should be identified by comparing source control criteria to riverbank soil in the area identified within the 50 foot set back from the top of bank to the mean high water line. Maps containing both in-water (SCE) and upland exceedances for ecological and human health risk should be included. Areas containing sheen or product, or debris such as slag and metal turnings, should also be delineated.

#2, Effectiveness of Proposed Remedy. There is considerable uncertainty associated with the proposed remedial action: use of a thin cap (0.5-1') to encapsulate soil in the upland and riverbank. The FS acknowledges that some penetration of the cap will occur over time through bioturbation and other processes. However, ecological exposure to the biologically active soil communities and burrowing mammals occurs at deeper exposure depth (0-3ft), as was identified in the risk assessment. DEQ does not believe a thin cap is sufficiently protective of ecological exposure, particularly in hot spot areas. A standard (minimum 2-ft cap) should be proposed in these areas. However, DEQ is willing to consider a thin cap remedy in areas of moderate contamination. For non-hot spot areas, more discussion of likely disturbance/mixing needs to be presented, outlining disturbances from: 1) plants and animals; 2) human activity, and 3) meteorlogical factors including heavy rainfall, runoff and wind erosion. Also, effectiveness monitoring is concern with a thin cap lacking a demarcation layer. Information should be provided regarding the use and effectiveness of "thin caps" at other remediation sites to support the argument that thin capping will provide long-term effectiveness. See following comment about thin cap use on the riverbank, which of greater concern (see comment #3 below).

DEQ's would like revisions to reflect a standard (minimum 2-foot) cap at the site (including demarcation layer) for the site riverbank and areas with higher levels of contaminants. To reduce implementation risk and carbon emissions, we are in favor of leaving more hot spot material on-site. A thinner cap (1') *may* be acceptable within the dripline of trees and certain portions of the upland (less contaminated areas) but would require more stringent monitoring. More discussion is needed on this issue.

#3, Riverbank Slope and Cap Thickness. It is questionable whether a thin cap is going to be effective and stable on a sloping riverbank surface. Final riverbank slope is proposed to be either 2H:1V or 3H:1V as

indicated in site figures. Higher-angle slopes are more likely to compromise capping through both human activity and physical processes. Please discuss. Note that DEQ typically requires a 2-3 foot cover for riverbank surfaces, with an underlying geotechnical fabric and anchoring cover (riprap or other) where inundation might occur. In Figures 17 and 18, a riverbank soil cap is shown extending to ordinary high water without any armoring.

#4, Implementation Risk. Under the proposed remedy (Alternative 7), an estimated 3,300 to 6,700 truck trips would be necessary through adjacent residential communities for implementation. For trips involving off-site transport of hot spot soil, significant implementation risk appears to be associated with this remedy. Carbon emissions are also a concern. For this reason, we believe that further discussion is necessary regarding alternative options for addressing site hot spots, including alternative transportation (potential use of rail cars or barges for soil transport), leaving more hot spot material on-site (with burial, if possible), etc.

#5, Vertical Extent of Contamination/Remedy Costs. A major source of uncertainty, with repercussions for cost and implementation, is the lack of subsurface soil data, most notably for dioxins and associated source chemicals. Depending on the depth of contaminants exceeding hot spot values, removal volumes vary *significantly,* with corresponding impacts on remedy costs. DEQ recommends that the Port complete subsurface sampling *prior* to final remedy selection so that the FS more accurately reflect likely removal actions, costs, implementation risks, etc.

#6, Likely Future Use of Site. More information is needed on the expected/likely human use of the site following remediation. Section 8.7 indicates that residual risk from the recommended removal and tin-cap remedy would be addressed through engineering and institutional controls, including information signs and a deed notice restricting site uses to "passive recreation" only. More *specific* information is needed on expected (human) site use to evaluate the effectiveness of the proposed remedy. For example, discuss whether human access is expected to be restricted to paved areas, whether access to the bankline will be restricted where human activity would be more likely to compromise the cap, etc. This has a bearing on whether portions of the site may be suitable for thinner capping.

#7, Sustainability of Proposed Remedy. There is some discussion of the carbon footprint of various remedial alternatives, which is informative. More is necessary, however, given the significant impact that remediation is likely to have on the neighboring community and environment in general (3,300 to 6,700 truck trips are estimated for remedy implementation). Please consider the following resources:

- DEQ's Green Remediation policy: http://www.deq.state.or.us/lq/pubs/docs/cu/GreenRemediationPolicy.pdf
- EPA Region 10's Clean and Green Remediation Policy: http://www.itrcweb.org/GuidanceDocuments/GSR-2.pdf
- Interstate Technology and Regulatory Council (ITRC) Green Remediation Guidance: http://www.itrcweb.org/GuidanceDocuments/GSR-2.pdf

Also, consideration should be given to alternative means for transporting contaminated soil from the site, and cleanup fill for cap to the site, including rail and barge. At the nearby M&B site, barges were apparently used to transport soil onto the site for capping, significantly reducing both truck traffic through residential neighborhoods and carbon emissions.

#8, Groundwater. There is no discussion of groundwater risk or the basis for exclusion in the Summary of Baseline Risk (Section 3.0) or Site Model (Section 4.0).

#9, EPA Comments. EPA is expected to provide comments on the FS by the end of November 2014 which should be considered in preparing a revised FS.